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On the unit of description in phenomenography

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‘Conception’ is the unit of description in Phenomenography. It has two intertwined aspects: the referential aspect, which denotes the global meaning of the object conceptualized; and the structural aspect, which shows the specific combination of features that have been discerned and focused on. We define a feature of an object as a way in which the object appears to be different from other objects, and argue that the discernment of a feature is a function of the variation experienced by the subject. The purpose of the paper is to empirically illustrate the intertwined nature of the referential and structural aspects of a conception on the one hand, and the variational origin of the discernment of features, on the other hand.

Introduction

Traditional phenomenographic research aims to investigate the qualitatively different ways in which people understand a particular phenomenon or an aspect of the world around them. These ‘different ways of understanding’, or conceptions, are typically represented in the form of categories of description, which are further analysed with regard to their logical relations in forming an outcome space.

In recent years, a discussion has developed regarding the issue of the nature of the unit of description in phenomenography. For example, readers of this journal may recall that in 1997 a special issue of this journal ‘Phenomenography in higher education’ was published. In that issue, Roger Säljö contributed a rejoinder (Säljö, 1997) to an earlier article, written by Marton (1996), which itself was a response to yet an earlier article by Säljö (1996). Questions such as: ‘What is a conception?’, ‘How should a conception be denoted?’, ‘What is the relationship between conceptions and categories of description?’, were raised.

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In this paper, we will try to advance this discussion. Our purpose is to illustrate and explain the nature of the unit of description in phenomenography by means of two empirical examples. Specifically, we will argue that a conception can be characterised as composed of both a referential aspect—i.e. a particular meaning of an individual object (anything delimited and attended to by subjects)—and a structural aspect—i.e. the combination of features discerned and focused upon by the subject. These two aspects, though different, are intertwined in nature. In this paper, we also attempt to point out the link between phenomenography and its further development, called Variation Theory, through a focus on the structural aspect of a conception. We should remember, however, that this structure is not *between* conceptions (as is the case with a traditional phenomenographic outcome space), but *within* conceptions. It is simply their internal structure.

A 'conception', the basic unit of description in phenomenographic research, has been called various names, such as 'ways of conceptualizing', 'ways of experiencing', 'ways of seeing', 'ways of apprehending', 'ways of understanding', and so on. Now, it is perfectly clear that 'conceptualizing' is not identical with 'experiencing'; learning to distinguish the taste of the same wine from two different years is not the same thing as to see the difference between a Newtonian and an Einsteinian concept of time. The reason for using so many different synonyms is that although none of them corresponds completely to what we have in mind, they all do to a certain extent. One can discern and focus upon conceptual features just as one can discern and focus on sense-related features. A theory can also have a core meaning, just as a certain wine might have a 'core meaning' for someone.

Meaning always presupposes discernment and discernment always presupposes variation (cf. Marton & Tsui, 2004). One can never discern a feature which is always present. If the ventilation system is on all the time, you cannot hear it, until it is switched off. The contrast between the unnoticed noise and the silence makes one aware of both. The importance of differences in the perception has, for instance, been dealt with by de Saussure (1972), who argues that the meaning of a certain word is derived from the set of other words that could have occupied the same position. Gibson and Gibson (1955), Garner (1974) and Bransford and Schwartz (1999) all have emphasized the role of contrast in perception: how you experience a certain feature of an object is a function of what you compare the object in question with.

There is thus no discernment without variation; hence every feature discerned corresponds to a certain dimension of variation in which the object is compared with other objects. In this paper, we will illustrate how discernment originates from the experience of variation.

The study

Forty Canadian high school students, aged between 16 and 19, were individually interviewed about two economic themes: price and trade. None of the subjects had learnt formal economics at school.

Some pre-designed questions, each presenting a concrete scenario, were used as conversation openers. As the interview developed, the students were allowed to move freely to any topic of their interest. To allow opportunistic questioning and respondent elaboration, not all of the questions in the set were asked in every interview. Instead, they were used in a rotational manner without the interviewee knowing the existence of other questions in the pool. Below are the questions:

Price:

1. Mary is a friend of mine. She bought a condominium unit some two years ago at the price of \$250,000. She has lived there since, and now she has to move in order to live elsewhere. However, the best price she can find for her unit is \$180,000. Why do you think that happened?
2. Tom works as a sales rep in a Disney store. There is a doll in the store that always gets strange remarks from his customers. The doll costs \$400. Why do you think it is so expensive?
3. Last week, I bought a can of Coke from one of the school's machines. It cost me a dollar. Two days ago, I drank one in the lounge of the downtown Sheraton hotel and it cost four dollars. Why is there such a difference?
4. A lot of people here collect baseball cards. I know that some of these cards are really expensive. They can go as high as a few hundred dollars, but others are not worth much. Why is there such a big difference between their prices?

Trade:

5. Why do people or businesses trade with one another? Have you ever traded anything with anybody?
6. Jane asked her father this question, 'Isn't it true that businesses make money from what they sell, but the customers who pay to get their products are all losing their money?' Do you have any comments on this?
7. What do you think of the free trade deal? The federal government says that all nations gain and no one loses. Do you think so?
8. Canada imports from and exports to other countries. Should countries trade with one another if they are able to produce for themselves what they need?

Data analysis

All the interviews were transcribed to yield data for a two-stage analysis. The first stage focused on identifying and describing the conceptions in terms of their overall meanings. This was done by marking and segmenting the transcripts according to the themes addressed. A unit was formed whenever there was sufficient evidence that a particular *overall meaning* had been expressed.

The second stage of analysis focused on identifying the structural aspect of each conception expressed. The units, now denoted by the various overall meanings, were studied in detail, to identify within each unit the elements of the phenomenon that were focused upon, and to devise a description of each conception's *structural aspect*. In doing so, we paid attention to the explicit *variations* that the student brought in as they focused on a particular element, as well as the *variations* that were implied by that element.

Results and discussion

Conceptions of price

The students expressed different meanings of price. As Dahlgren (1978) and Wood (2000) have shown, the dividing line among these meanings falls between 'price as reflecting the inherent value of the object' and 'price as reflecting market conditions'. Examples of the former (conception A) include views such as: 'something is worth a lot because it is nice, big, beautiful, whilst something costs less because it is unpleasant, small, ugly.' The latter meaning focuses on price as the relationship between buyers and sellers. It contains three sub-categories: a demand view (conception B), a supply view (conception C), and both a demand and supply view (conception D). These views correspond to how price differences were accounted for. They could be explained in terms of whether many or few want the object in question (and hence conception B); or whether there is much or little available (and hence conception C); or whether many or few want the object on the one hand, and whether there is little or much of it available on the other hand (and hence conception D).

Interestingly, those who expressed conception A when dealing with the condominium question seemed to have a particular unit in mind, or were trying to envisage the particular one mentioned in the question. Similarly, with the doll question, interviewees had a particular doll in mind and they tried to envisage what it was like. In the cases where the market meaning was used, other conceptions of price (B, C, D) were expressed. In such cases, the interviewees did not focus on a particular condominium unit or a particular doll. Instead, they seemed to 'see' a market for housing or dolls, *people* who were potential buyers of units or dolls and people producing and selling units or dolls. This dividing line was linguistically indicated by the fact that when conception A was expressed, the interviewees used the singular form (they talked, for instance, about *the* unit or *the* doll in over 95% of the cases). In contrast, when conceptions B, C or D were expressed, the interviewees referred to the object in the plural form (they talked about units or dolls in about 70% of the cases). Let us now consider one conception at a time, mainly using the doll question for illustration.

Conception A: price as reflecting the value of the object. Here is an example:

- S27: Well, I don't see the doll, so I can't say the doll is worth that amount or not. But I'll probably think that 400 dollars for a doll is a bit too much. It depends on what it is.
 I: What do you mean?
 S27: Well, if it probably is a doll that talks to you, and has got these features that other dolls don't have, a bit more, a big doll, it depends on what it has.

Our description of 'price as reflecting the value of the object' is aimed at capturing the general sense of this conception, and we found it applicable across the specific questions asked. This overall meaning, or what we labelled the 'referential aspect' of the conception, ran through the interviewees' comments, and was highlighted by expressions such as 'the doll is worth that amount' and 'it depends what it has'.

We also identified a second, structural aspect of the conceptions, or those elements of phenomena as embodied in the specific context that were simultaneously discerned and focused upon by interviewees. This aspect of conception A was demonstrated when the student explained the 'worth' of the doll in terms of the specific attributes that the doll might have (it might talk, it might be big). The focus on the doll and its attributes was evidenced in the interviewee's hypothetical comparison with other dolls, as she opened the dimension of variation for depicting dolls with varying features.

Similarly, in the case of the condominium question, interviewees who expressed conception A focused on the condition of the unit. They opened up this dimension of variation as they considered that the physical conditions of the unit could change as time went by. When it came to the Coke question, few would think that the actual product could vary much, although one interviewee did argue that the price difference was due to school machines selling 'imitation Cokes'. The most noticeable dimension of variation opened up, however, was the presence/absence of 'extras', such as ice-cubes, fancy glasses, and so on. With the baseball card question, variations revolved around the qualities of the card, including how old it was, and the relative fame of the player that it depicted. The dimension of variation brought into focus was *between* cards: some are older than others, whilst some depict more famous players than others.

Conception B: price as reflecting demand. An example is provided below:

S25: Well I think all the prices in the Disney store are slightly high. But it's probably because it is the name Disney. You can get away with charging more and people are willing to pay more money for products that have the Disney trademark.

The referential aspect of this conception is adequately captured by its title, as well as the interview excerpt above. As far as its structural aspect is concerned, the focus is on the buyers who may or may not be willing to pay for the good. Across the four questions, the term 'people' was mentioned in virtually all of the answers that expressed this conception. The dimension of variation that opened was people's willingness to buy, or their capacity to do so.

Conception C: price as reflecting supply. An example is provided below:

S31: Because it has just come on the market ... Once there is mass production of it, the price will go down. It depends how many there are in the market, too, if there [are] a lot or [if there is] just one, that particular one.

Here, price is a function of availability. The element that was focused upon, and the corresponding dimension of variation, was the amount made available. The case is the same for the condominium question, where prices were thought to decrease as new condos were built. For the Coke question, the variation was between places where the product was purchased, differing with regard to the choices available. For the baseball card question, the variation mainly concerned the rarity of the cards in question.

Conception D: price as reflecting both supply and demand. An example is provided below:

Q.2: The doll question

S33: It depends why the price is so high ... obviously this is a collector's item for it warrants a price that high. This is not an item that most people will get. It is an item for someone who is interested in such things, and when you have a niche market and you go into that market, you can charge whatever you want so long as there is demand for such an item. And obviously the production ... the item will be produced in sufficiently small numbers to make it ... to warrant that demand. That's why it's priced so high. Otherwise the store would go out of business.

In this case, the general senses expressed in both conceptions B and C were combined (to form the referential aspect): accordingly, both buyers and providers are focused upon and discerned simultaneously (to form the structural aspect). The simultaneous discernment of elements related to both demand and supply characterized all of the answers that expressed this conception. On the demand side, the elements discerned included people's willingness to buy, their capability to do so, and the number of people who were willing and capable of buying. On the supply side, such elements included the level of production, the availability of choices and the sellers' willingness to sell.

Conceptions of trade

These were explored with questions 5–8, two of which dealt with trade between persons, and another two with trade between nations. Two distinctly different conceptions were found. The dividing line fell between seeing trade as something that benefits all of the parties involved (conception X), or seeing trade as a zero-sum activity, which means that one party must lose for another party to gain (conception Y). This difference in the meaning of the two conceptions, or the referential aspect, corresponded to differences in what was discerned and focused upon, or the structural aspect (for conception X this was the products traded, while for conception Y this was the money involved).

Conception X: trade as a win-win activity. An example is provided below:

Q.5: Personal trade

S19: I'd give you something and you'd give me something in return.

I: Right, why should that happen?

S19: Because, let's say, I'm a farmer and I grow all this corn. And ... you're a dairy farmer and you have cows and there's milk. So, if I have all this corn, that's cool for a while, I can make corn bread, and popcorn and all sorts of corn. But after a while, I could get sick of it and I'd really like some milk to go with my corn bread. So then I go to you and I say, I can't have all this corn, so here's a bunch for you, so you give me some milk and then I have milk and you have corn, and everyone's happy ...

I: Am I taking advantage of you?

S19: No, it's fair. Everything's cool. 'Cause I need milk and you need corn. So we're trading.

This is clearly a case where both parties gain, and ‘everyone’s happy’ (the referential aspect). Products are discerned and focused on (the structural aspect), and this focus is reflected by the interviewee opening the ‘product dimension’ for variation—‘then I have *milk* and you have *corn*’. The products traded vary, and so does their subjective ‘use value’, as you have something more worthwhile for me than for you, but I have something else which is the other way around. This is why both parties are perceived to gain from trade.

In most cases involving conception X, the focus was on the *products* traded. Money was either not mentioned or simply a medium of exchange. What was taken to be important was the *nature* of the products being traded, that is whether or not they would benefit the partners involved. The products were thus objects of focal awareness.

Conception Y: Trade as a zero-sum game. An example is provided below:

Q.8: Import and export

S.38: People also make analogies from kids, like trading baseball cards with each other. So I have these baseball cards and you have those baseball cards, so we trade with each other because I don’t have what you have, and you don’t have what I have. So trade benefits you as well as well as ...

S38: Yeah, but also, with that there isn’t money coming into it. It’s not like, ... okay, I’ll offer you this card and two dollars for your one card. So you got a card you need plus two dollars. And that’s what would happen because you’d be making money off me ... I’d be making the cards but I’m still not gonna have the same because I’ve been paying you as well as giving you stuff ... for the cards. If it was just trade, if it was just based on pure trade and money not involved, then this idea has potential. That’s not gonna happen. It’s the money ... it’s not like, back where beaver pelt, where in the old days you could give them a beaver pelt and they’d give you a dozen eggs or whatever.

In the case of this conception, the answers are structurally characterized by the student’s concern about the monetary aspect of trade. The commodities or products being traded were either not mentioned or only taken as a means by which money (or an income) was made. This was in contrast to conception X, where the focus was on products. In fact, some students explicitly distinguished between cases of ‘trade without money’ and ‘trade with money involved’ to explain that only the former was a mutually beneficial activity. The conclusion that the involvement of money necessarily initiated a trade-off is most understandable, as the combined total of money that both trading partners have would not change as a result of trade. When one party is better off, it must be at the expense of the other party.

It should be noticed that we are reporting the distinctions that we have found in the students’ ideas about trade. They do not necessarily reflect what economists would say about this issue.

Referential and structural aspects of the conceptions: a summary

Tables 1 and 2 summarize the referential and structural aspects of the conceptions discussed. There were 137 observed conceptions of price, and 58 of trade (see Tables

Table 1. Conceptions of price

Conception	Referential aspect	Structural aspect
A	Price reflects the <i>value</i> of the object concerned	Focused on the <i>characteristics</i> of the object in question
B	Price is related to the <i>demand</i> conditions of the market	Focused on the <i>people who buy</i> such objects
C	Price is related to the <i>supply</i> conditions of the market in which the object is situated	Focused on the <i>people who sell</i> such objects, or the <i>places where they are sold</i>
D	Price is related to the <i>opposing demand and supply conditions</i> of the market in which the object is situated	Focused on both people who buy <i>and</i> people who sell such objects (or places where they are sold) simultaneously

3 and 4). The data suggest that the referential and structural aspects of the identified conceptions corresponded to each other in nearly all of the cases. Note that the correspondence between referential and structural aspects only can be observed when an interviewee expresses a certain conception in relation to a specific question (such as the questions used in this study). Whether they would express the meaning of the phenomenon in question at an abstract level, or whether they would use expressions similar to ours in depicting the overall meaning of the phenomenon or in describing what is discerned in a specific situation, remains undetermined.

Inter-contextual conceptual shifts

The data also showed that many of the interviewees used more than one conception for a particular phenomenon. Some of them shifted from one conception to another as they addressed different questions. For price, 28 out of the 34 students who responded to multiple questions demonstrated inter-contextual shifts. For trade, there were 14 out of 16. This suggests that the students took each case as being a separate and particular context, even though all of the cases belonged to the economic phenomena of price or trade. Thus we cannot ascribe a certain conception of price or trade to a particular individual.

As has already been argued, in order to discern something and focus upon it, we must experience variation in that which is discerned. Accordingly, if variation in a

Table 2. Conceptions of trade

Conception	Referential aspect	Structural aspect
X	Trade is a <i>win-win</i> activity for both trading partners	Focus on the <i>products</i> involved in trade
Y	Trade is a <i>zero-sum, trade-off</i> activity	Focus on the <i>money</i> involved in trade

Table 3. Distribution of conceptions across different questions on price

Price		Conception				
Question	No. of subjects	A	B	C	D	Total
Unit	38	30 (50.8%)	24 (40.7%)	1 (1.7%)	4 (6.8%)	59 (100%)
Doll	20	14 (48.3%)	8 (27.6%)	4 (13.8%)	3 (10.3%)	29 (100%)
Coke	29	9 (24.3%)	8 (21.7%)	11 (29.7%)	9 (24.3%)	37 (100%)
Cards	12	2 (16.7%)	2 (16.7%)	5 (41.8%)	3 (25.0%)	12 (100%)
Total	99					137

certain element of a phenomenon is more easily or readily felt, then it is likely that we will discern this particular element rather than others. In our comments above, we made the point that question 1 affords variation in the object (the unit) over time (it is comparatively easy to imagine the deterioration of the unit over time), while question 2 affords variation *between* dolls with different characteristics (again, it is easy to imagine that some dolls have features which others lack). It is harder to explain price differences between Coke sold in different places, or between baseball cards of different players in terms of physical characteristics of the object. Consequently, there were proportionally more 'A' conceptions (focusing on characteristics of the object) for questions 1 and 2 than for questions 3 and 4 (see Table 3).

There was great variation in the frequency distribution of the two conceptions between the four questions on trade (see Table 4). The first two questions, which were about trade between persons, attracted disproportionately more win-win

Table 4. Distribution of conceptions across different questions on trade

Trade		Conception		
Question	No. of subjects	X	Y	Total
Personal	11	11 (84.6%)	2 (15.4%)	13 (100%)
Jane	6	6 (85.7%)	1 (14.3%)	7 (100%)
Free trade	24	6 (22.2%)	21 (77.8%)	27 (100%)
Canada	7	6 (54.5%)	5 (45.5%)	11 (100%)
Total	48			58

conceptions (characterized by a focus on goods), while the questions about international trade attracted comparatively more zero-sum views. Our explanation is that in personal trade people could swap one thing for another, which means that the products vary, and are thus a focal point. In contrast, international trade is frequently measured in terms of trade balances—i.e. how the flow of money varies—hence money was mostly the focal point.

Intra-contextual conceptual shifts

Apart from inter-contextual shifts, we also noticed that many students expressed more than one conception even when answering any given question. The price questions were asked 99 times and 36 intra-contextual shifts were noted. For the 48 times that the trade questions were asked, we also noted 10 intra-contextual shifts. The presence of intra-contextual shifts makes it even more difficult to tie a particular student to a particular conception.

While some of these shifts were triggered by the interviewer's follow-up questions, many more occurred spontaneously as the course of the conversation developed. These 'natural' shifts, as will be seen in the excerpt below, came only after a short pause, or were instigated with a simple adverb such as 'also' or 'sometimes'. The correspondence between referential and structural aspects of conceptions is here seen from a dynamic perspective: change in one is followed by change in the other. The following is a student answer to the question about free trade (i.e. question 7):

S02: OK, yes, everyone will win because no one has to pay these excessive tariffs. And then the government's theory is that the government does not make as much *money* as with the tariffs, but that free trade encourages people to do more trade, so that they'll get more *money* anyway. The country will prosper more. OK. That's fine, but I think the problem now is people go to America to do business because I guess it's freer there or things are cheaper. So if things stay the same except for the taxes, then we would profit. But the point is, people would still go where it is cheapest so they go to the USA or Mexico. And that's how people lose. (conception Y)

I: Don't you think it's kind of puzzling that people say, 'With free trade, everyone gains. Canada gains. America gains. Mexico gains. Everyone is better off with no one being worse off.'

S02: I had this discussion with my Dad recently. It wasn't about free trade, but it was just about how everyone can gain. I guess the people who lose money are the consumers who pay. The point is that if more businesses come, then the government makes money. The businesses make profit, but the people who are buying these things are losing. *Well, not actually losing because they are getting what they want. So, yes, I guess it can work like a circle. Everyone pays so he gets something from someone else. I don't know. I guess it can work. I guess that's what growth is.* (conception X; emphasis added)

[Pause.]

I: Don't strain yourself too hard [laughs].

S02: It's a difficult concept to grasp—everyone gains when there is no more *money* available (conception Y).

I: I am interested in listening to how the government could argue that everyone can gain with free trade. I just want to understand the logic in the government's argument.

S02: I can see that generally you can make it that most people could prosper. I don't believe like that everyone is equal. It's good to promote equality but there are always people who don't work and they are never going to *earn their money*. You can't make everyone prosper. You just can't. Never can people be equal because they can never work as each other. You can generally increase the prosperity of the country in general. So, if the government says everyone gains, I think that's an exaggeration. (refuting conception X; emphasis added)

The student changed his view as he was provoked by the interviewer's questions for clarification or elaboration. We can see that the changes in conception were closely accompanied by changes in focus. S02 was initially asked the question on the free trade agreement, to which he indicated a clear zero-sum view of trade – the USA and Mexico gained and Canada lost. His focus, at that time, was entirely on money.

He later tried to grapple with the meaning of trade as suggested by the interviewer, that it leaves everyone better off. He was puzzled about how this would be possible, and momentarily shifted focus from money to products, as he said that, 'businesses make profit, but the people who are buying these things are losing. Well, not actually losing because they are getting what they want'. He was unconvinced of the win-win trade argument, and returned to a focus on money and people's earnings. This sequence of shifts is summarised in Table 5.

Conclusion

Our understanding of conceptions

We have shown that a conception has two dialectically intertwined aspects: a meaning (the referential aspect) and a structure (the structural aspect). While capturing the meaning of a concept is a matter of interpreting what a person is saying, the structural aspect can be identified by linguistic markers (e.g. the singular-plural distinction).

The relationship between referential and structural aspects

The intertwined nature of the two aspects was clearly demonstrated: there was a match between them in around 95% of the cases. However, the two aspects could only be distinguished when the interviewees discussed concrete cases and not when they gave abstract conceptual answers. Some further complexities, such as shifts of attention and brevity of expression, also contributed to the less than perfect match.

Table 5. Sequence of shifts by S02

Sequence	Aspect focused upon	Variation	Conception
1st	Money	Government and businesses make money, customers lose money	Y
2nd	Product	What people want	X
3rd	Money	Who earns money	Y

Discernment and variation

In 52% of the conceptions expressed the interviewee brought out *explicit variation* in the dimension corresponding to the object focused upon. In these cases, the interviewees themselves introduced a comparison of two cases differing in the particular feature focused upon. For example, one interviewee said that, 'The condo is older than it used to be when she bought it, so the price goes down'. This sentence can be represented by the following scheme:

new condo → higher price
old condo → lower price

Such *explicit variation* can indeed be found in every conception expressed in relation to every question.

However, we also observed cases where the interviewee simply said, 'It is *old* now, so it is *not* so expensive'. In such a case, we can interpret 'old' as 'old instead of new', and 'not so expensive' as 'not so expensive instead of expensive'. The same scheme, above, would still be applicable.

We thus contend that statements such as 'It is old now, so it is not so expensive', reflect the experience of variation (in the age and the price of the condominium) that is implicit. The person saying so is aware of the fact that the condominium could have been newer and then it would have cost more. Variation is thus implicit in statements connecting two 'values' (such as 'old' and 'low', for instance) in two dimensions of variation (such as 'age of condo' and 'price'). According to this line of reasoning, the experience of variation is always present when a conception is expressed, even if it was only expressed explicitly in 52 % of the cases in this study.

Inter-contextual and intra-contextual shifts

We found that the same individual can express different conceptions of the same phenomenon when asked different questions, or when in different situations. This fact has actually been reported in other phenomenographic studies. Furthermore, we found interaction between the questions asked and conceptions expressed. For example, the condominium question was highly conducive to the value notion of price, while the baseball card question easily allowed the students to use a supply notion of price. Those questions concerning inter-personal trade led more easily to a win-win conception, but those concerning international trade usually resulted in a zero-sum view.

We interpreted this difference in conceptions as a reflection of differences in the questions that were asked, and the particular dimensions of variation that they afforded. Despite the conception-question interactions, we were able to see a close match between the referential and structural aspects of the conceptions identified.

The unstable character of conceptions was further illustrated when the interviewees moved from one conception to another as they changed their focus. Although in most cases a shift in focus was followed by a shift in meaning, in other cases, a provoked

change in meaning caused a change in focus. The accommodating but inquisitive attitude of the interviewer during the interviews could also have facilitated these micro-shifts. However, the parallel changes in the structural and referential aspects of conceptions suggest that our idea of a dialectic between the two was conclusively accurate.

Beyond the unit of description as characterized here

As Pong (2000) reveals, at the end of each interview the student was invited to reflect on their views expressed in relation to different questions. Most students who expressed different conceptions of price (and trade) could be argued to have contradicted themselves. However, none of them saw any contradictions, even when probed. This was because while the researcher believed to have found understandings of *price* (or *trade*), the students had just expressed their understanding of the *price of condominiums*, *dolls*, *Coke*, *baseball cards* (*trade between persons* or *trade between nations*, for instance). They did not see a need for a general concept of price (or trade). This distinction, between generalized conceptions that are unreflected but inherent in the students' contextual understanding of the phenomenon in question, on the one hand, and generalized conceptions that the students can analytically separate from the specific context, on the other hand, is not captured in the present model of description. As Svensson (1989) points out, it is a step that has to be urgently taken.

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We believe that this is an appropriate contribution to this Special Issue dedicated to John Bowden, for three reasons. First, the paper deals with probably the most fundamental issue in phenomenography, the clarification of which is essential for the entire phenomenographic project. For about 20 years, John has been the main advocate of, and the main contributor to, such a clarification. Second, this paper is supposed to bridge between phenomenography and variation theory; John is actually one of the two authors of an earlier—and far more substantial—bridge between the two, the book in *The university of learning* (Bowden & Marton, 2004). Third, this paper was based on a PhD thesis of which he was examiner (Pong, 2000).

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